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TITLE: System in which a Proxy-Server translates information
                received from the Internet into a form/format readily
                usable by low power portable computers

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Brief Summary Text - BSTX (14):
   In a preferred embodiment of the invention a computing system is provided
comprising a field computer comprising a display having a specific size and
resolution; and a Proxy-Server connected to the field computer by a data link,
the Proxy-Server having an Internet port. The Proxy-Server is adapted in this
preferred embodiment to access Internet servers through the Internet port
directed by commands and data received from the field computer, to download
data from the Internet servers thus accessed, to transpose the downloaded data
by reducing information density, and to transfer the transposed data to the
field computer via the data link in a Transfer Control Protocol/Internet
Protocol (TCP/IP) **format**.

Brief Summary Text - BSTX (22):
   There are many benefits to be expected from practicing various embodiments
of this invention. For example, low-end, hand-held computers, including such
units known generally as personal organizers and personal digital assistants
(**PDAs**), now become fully-functional Web browsers. This effect alone extends
the use of the Web dramatically to people and institutions that might otherwise
be excluded from the exponentially growing body of human knowledge available.
The benefits extend to schoolrooms as well as to the homes of potential users.
Accessibility is also significantly advanced for cultures and countries where
such technology might not be available soon, or ever. There are many such
social and cultural benefits. In addition, there are the clear benefits of
power-saving, produced by the very efficient use of computing power at the
Proxy-Servers of the invention, rather than at the computers in the field.

Detailed Description Text - DETX (4):
   In this embodiment hand-held computer 13 is a high-end personal organizer,
such as a Sharp Wizard.TM. personal organizer. The hand-held computer,

however, can be any one of a large number of commercially available computing devices with a broad range of capabilities, including those devices known as personal digital assistants (**PDAs**). In other embodiments and aspects of the present invention, the computer used by a person to access and interact with the Proxy-Server in practicing the present invention need not be a hand-held, or even a portable computer in the sense the terms are used in the art. In some aspects, capabilities of a field unit according to the present invention are built into a set-top box for a TV system or directly into a TV set.

Detailed Description Text - DETX (17):
   Proxy-Server 19, instead of displaying the downloaded data (or playing video and/or audio output, as the case may be, depending on the downloaded data), **translates the data to a simpler communication protocol** and sends the data to computer 13 for output over link 15 in a **TCP/IP** protocol. Link 15 becomes a dedicated TCP/IP pipe to and from Proxy-Server 19. Proxy-Server 19 thus acts as a proxy for computer 13, performing those functions of WEB browsing computer 13 cannot perform.

Detailed Description Text - DETX (20):
   One of the processing tasks that has to conventionally occur at the browser's computer is processing of received data into a **format** to be displayed on whatever display the user has. There are, as is well-known in the art, many types of displays and many display modes. These range all the way from relatively crude LCD displays to high-resolution, multi-color displays. There are, in addition, a number of other functions that have to be performed conventionally at a user's computer to interact effectively with the WWW. For example, audio and video and some other functions typically require supplemental, or helper, applications to be installed on or downloaded to a field unit to process audio and video data and the like.

Detailed Description Text - DETX (21):
   Most data transferred by WEB servers assumes relatively high-end displays, such as color SVGA displays as known in the art. In **PDAs** and digital organizers, such as those anticipated for use in the present invention, the displays are relatively low resolution, and are typically LCD in nature. In the system described with the aid of FIGS. 1 and 2 InterBrowser program 45 at the Proxy-Server and the HT-Lite NanoBrowser program at the hand-held unit cooperate in another manner as well. When one connects to the Proxy-Server the hand-held unit, through the HT-Lite NanoBrowser program, provides a signature which the Proxy-Server compares with logged signatures.

Detailed Description Text - DETX (24):
   There are many functions other than simple WEB browsing that are desirable for a hand-held devices like those contemplated to be used with systems according to embodiments of the present invention. The typical functions for digital organizers and **PDAs,** for example, such as scheduling of appointments, listing phone numbers, addresses and the like, taking notes, sending faxes and E-mail and so forth, and such tasks as currency conversion, are still provided by a hand-held unit executing HT-Lite. Now, however, these functions are more

interactive than previously, as data for these functions can be exchanged through the TCP/IP link with the Proxy-Server, which may access data from a variety of sources to update data for such functions.

Detailed Description Text - DETX (26):
   To practice the invention, given an accessible WEB server configured as a Proxy-Server according to an embodiment of the present invention, one needs only to load HT-Lite NanoBrowser software on a computer and to provide Internet access for the computer, such as by a telephone modem. In many cases, candidate computers have built-in modems. In other cases, an external modem may be provided and connected. In the case of hand-held devices, such as **PDAs** and organizers, some have an ability to load software via a serial port, a PC card slot, through the modem extant or provided, or by other conventional means. IN some cases, all operating code is embedded, that is, recorded in read-only memory. In some of these cases, adding HT-Lite routines may require a hardware replacement. In virtually all cases of hand-held devices, however, the necessary routines can be provided.

Detailed Description Text - DETX (43):
   At step 101 the Proxy-Server converts all of the .jpg files to a dithered bitmap **format** according to information associated with the user ID received from the hand-held at log-on. This ID establishes the size and resolution of the hand-held's display, for example, and the bitmap created from the .jpg files is scaled to the hand-held's display.

Detailed Description Text - DETX (64):
   In FIG. 6 events for purposes of description begin at step 119. Modified SendMail is active. At step 121 incoming mail is received. In this modified system, there are three file systems 123, 125, and 127 for storing E-mail in different versions. At step 129 a text copy is saved in file system 123 according to Post Office Protocol, revision 3 (POP-30 **format,** known in the art. At step 131 a copy of the received E-mail entity is saved in HTML **format,** for WEB mail. At step 133 a copy of the entity is saved in HTL **format,** compatible with the communication protocol for HT-Lite used between a field unit and a Proxy-Server in embodiments of the present invention.

Claims Text - CLTX (4):
   wherein the Proxy-Server is adapted to access Internet servers through the Internet port directed by commands and data received from the field computer, to download data from the Internet servers thus accessed, to transpose the downloaded data by reducing information density, and to transfer the transposed data to the field computer via the data link in a TCP/IP **format**.

Claims Text - CLTX (14):
   wherein the first Internet server is adapted to access the other Internet servers through the first data port, directed by commands and data received through the second data port from the field computer, to download data from the Internet servers thus accessed, to transpose the downloaded data by reducing

information density, and to transfer the transposed data to the field computer via the first data link in a TCP/IP **format**.